



NEWSLETTER OF THE LONDON CHAPTER,  
ONTARIO ARCHAEOLOGICAL SOCIETY  
Grosvenor Lodge, 1017 Western Road, London, ON. N6G 1G5  
(519) 645-2844



November, 1995

95-7

## TOMB-TIME: ARCHAEOLOGY ON THE NORTH COAST OF PERU

Andrew Nelson, University of Western Ontario  
Thursday, January 11th, 7:30 PM

This month we feature local Chapter member and part of the Gang up at the U, Andrew Nelson, who will present some of the work he has done in South America. Come on out and see why Ontario's Cemeteries Act could never work in that part of the world! As always, the meeting will be held at Grosvenor Lodge, so come out early for some conversation, coffee and cookies.

February Speaker Night: Christine Dodd, of the MTO, will report on some work she's done on Woodland sites in central Ontario. Meeting time is February 8th at 7:30 PM at Grosvenor Lodge.

### Chapter Executive

#### ANNUAL RATES

Individual.....	\$15.00
Family.....	\$18.00
Institutional.....	\$21.00
Subscriber.....	\$17.00

#### President

Pat Weatherhead (438-4817)  
802-316 Oxford St. W., London

#### Vice-President

Chris Ellis (657-6705)  
1106-695 Proudfoot Lane, London

#### Directors

Beverly Morrison (474-7914)  
368 Oxford St. W., #204, London

Jim Wilson (641-2979)  
631 Griffith St., London

#### Secretary

Lorelyn Giese (645-0057)  
10-40 Summit Ave., London

#### Treasurer

Harri Mattila (672-6523)  
26 McMahan, London

Karen Mattila (672-6523)  
26 McMahan, London

Len Fluhrer, III (686-6542)  
129 Pond Mills Rd., London

Christine Nelson (438-4898)  
22 Peter Street, London

## EXECUTIVE REPORT

At our recent Christmas Party and Annual Business meeting (something which "ran on" for a full 10 minutes!), the 1996 Chapter Executive was announced. Basically, the only change is that Bev Morrison is now Chapter president, filling in for the departing Pat, who's now off to fix the provincial OAS! Thanks Pat for all your efforts on behalf of the Chapter over the years...hopefully we didn't suck out all your life force!

We've also heard that the OAS Executive-Director, Charles Garrad, is stepping down after more years at the helm of the OAS than even he'd like to admit! On behalf of the London Chapter we nod our caps (or heads), and wish Charlie the best of luck in his new endeavours. Hmmm, I wonder if anyone's told potential replacement candidates that they've got to sign a contract with the OAS for the next 25 years?!!

As mentioned last month, the Chapter Operations Committee was hoping to present a financial outlook for the Chapter, in advance of making some tough decisions. However, all that has been preempted by news that Grosvenor Lodge is hiking it's rental fees, again, along with the news that the people running Grosvenor Lodge were planning to move the Chapter's office space around, etc. Given that the cost of maintaining a presence of Grosvenor Lodge is ever rising, and given the current downturn Chapter finances have taken, the Executive has decided to leave Grosvenor Lodge as of the end of February, 1996. Current plans are to store Chapter records and materials at the University of Western Ontario, either set up a P.O. Box or other new mailing address, and look for an inexpensive locale for holding speaker nights (back at the Museum, UWO, public library, MCZCR office, etc.?). Keep your eyes peeled to subsequent editions of the newsletter for more information. Also, if you have any ideas of preferences for new digs and speaker night venues, please let someone on the Executive know.

Yes, it is coming! Even as this is being written, the last finishing touches are being done to the Chapter's Occasional Publication #4, Greg Curnoe's DEEDS/NATIONS. If all goes well, expect to see an announcement for a book launch in the next few months!

## SOCIAL REPORT

Claire, Christine and Dana hosted another successful Christmas party for the Chapter, and despite a few cases of flu occurring immediately afterwards, everyone had a great time! Thanks again, hopefully there were generous leftovers for you to enjoy!

## EDITOR'S REPORT

John MacDonald provides us with our food for thought this month. Reader's will note that John's photographs were reproduced in a better format than is the custom in KEWA. That's because our printer now has a fancy copier that will make nice (and relatively cheap) halftone prints. So if you've been holding on to an article for KEWA 'cause you don't like the way were reproduce photos, you needn't worry anymore! So fire something off will ya? Our cupboard's looking way thin again!



# **TURF GRASS INSTITUTE SITE (AjHb-27) - LOCUS B TEST EXCAVATIONS GUELPH, ONTARIO**

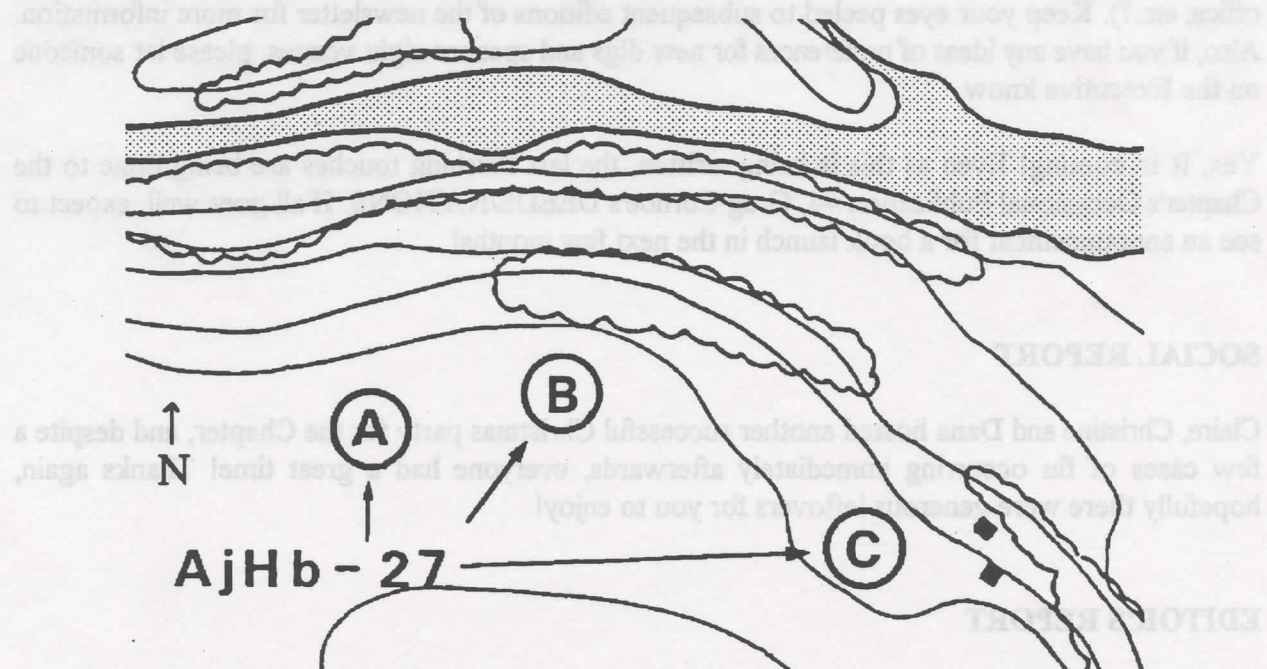
**John D. A. MacDonald**

*(This report is dedicated to memory of HENRY FORD)*

## **INTRODUCTION**

The Turf Grass Institute Site (TGIS) consists of several loci, or concentrations, of lithic scatter located on a terrace overlooking the Eramosa River on the eastern boundary of the city of Guelph (Figure 1). Surface collections indicated a wide range of Archaic occupations were present, dating from circa 8500 - 2800 B.P. Although not the largest or oldest, locus B was selected for initial test excavation due to a more concentrated and higher yielding artifact recovery rate. It was hoped that more data could be retrieved in the limited time allotted for excavation from this locus, and possibly even features.

The TGIS excavation was to be initially part of a summer employment project conducted in association with a survey of the Eramosa River drainage basin. Since no one individual was found to conduct both aspects of the project, the author volunteered to direct the site excavation as a weekend project. This allowed over thirty volunteers to participate in the dig, most for the first time.



**Figure 1: TGIS Loci.**



Fifty-five square metres were excavated by enthusiastic volunteer labour on July weekends in 1992. Removal and screening of stoney clay-loam topsoil yielded a wide range of tools, debitage, cores, and projectile points. Three shallow, linear features were also uncovered. These were recorded and soils underwent flotation processing.

Although this multi-component Archaic site has been intensively ploughed for decades, an attempt to associate debitage and tools with diagnostic projectile points appears hopeful, as Late Archaic points were derived from areas of the locus separate from Middle Archaic points. However, three "retouched bladelets", previously known from only Early Archaic sites in Ontario, were also recovered, even though no Early Archaic points have been found on Locus B. Either these "bladelets" are Early Archaic or their manufacture and use had continued for thousands of years longer than has been recognized.

## **ENVIRONMENT**

The Turf Grass Institute Site is located on a wide terrace overlooking the Eramosa River to the north and situated below a high knoll to the south. The Eramosa presently occupies a wide flood plain, but below the site the river abuts the terrace, creating a series of steep embankments and level ground down to the river. West of the site the terrace narrows until the knoll extends uninterrupted to the river embankment. To the east of the site a cut in the embankment allows a gentler access to the river and flood plain below. The terrace on which the site is located covers a span of approximately 300 metres.

The TGIS site is located on the Guelph drumlin field, a physiographic region consisting of glacial spillways between high drumlins (Chapman and Putnam 1984). Soils at the site (Hoffman et al 1963) are composed of Burford loam at the top of the embankment, and Donnybrook sandy loam on the plateau. This Burford soil consists of loam over gravel deposits. The Donnybrook soils consist of gravelly sandy loam mixed with stones. The silt component noted at the site was probably eroded from the drumlin to the south.

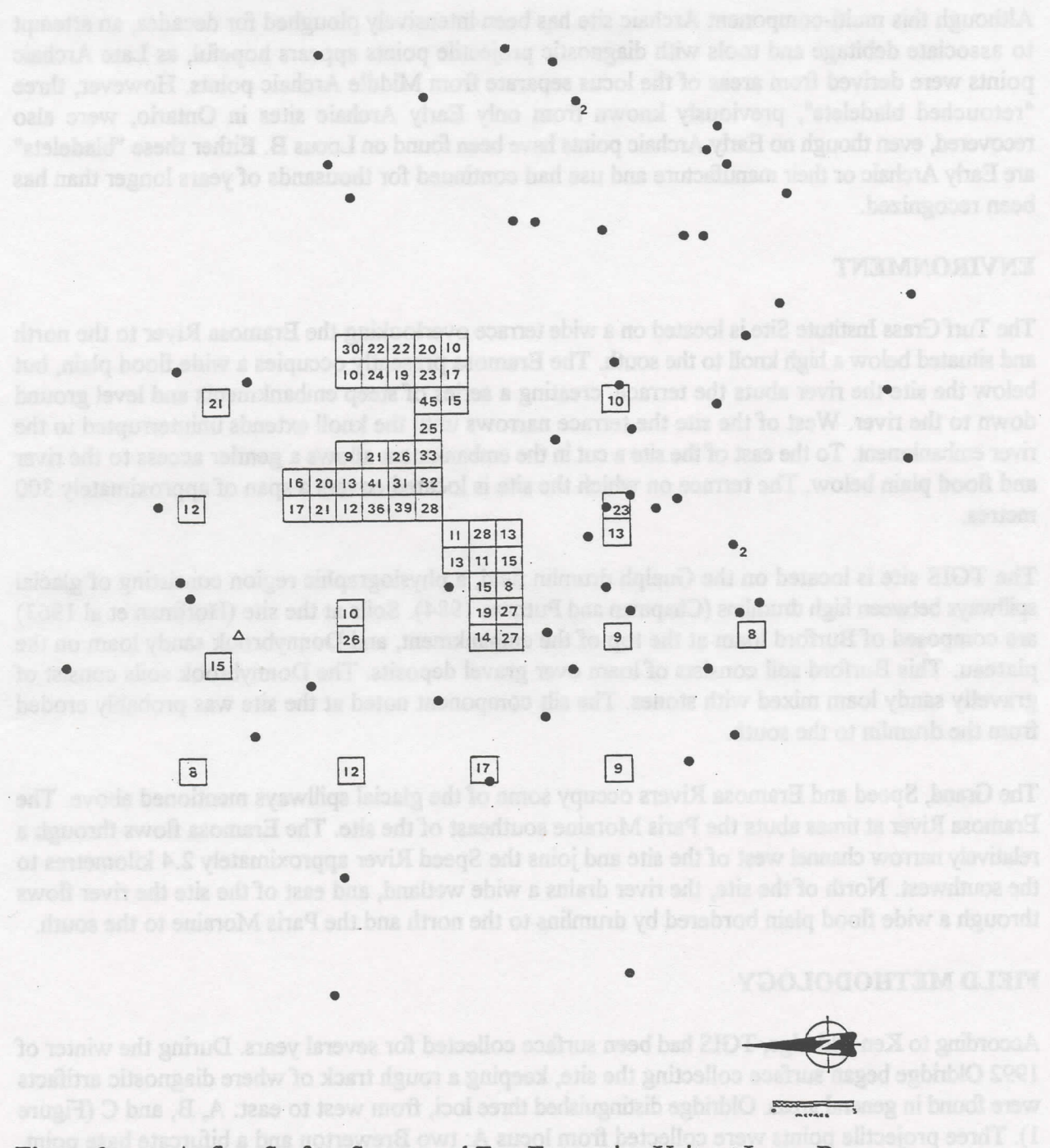
The Grand, Speed and Eramosa Rivers occupy some of the glacial spillways mentioned above. The Eramosa River at times abuts the Paris Moraine southeast of the site. The Eramosa flows through a relatively narrow channel west of the site and joins the Speed River approximately 2.4 kilometres to the southwest. North of the site, the river drains a wide wetland, and east of the site the river flows through a wide flood plain bordered by drumlins to the north and the Paris Moraine to the south.

## **FIELD METHODOLOGY**

According to Ken Oldridge, TGIS had been surface collected for several years. During the winter of 1992 Oldridge began surface collecting the site, keeping a rough track of where diagnostic artifacts were found in general areas. Oldridge distinguished three loci, from west to east: A, B, and C (Figure 1). Three projectile points were collected from locus A: two Brewerton and a bifurcate base point.



In May, the Grand River/Waterloo chapter of the OAS spent one evening surface collecting and mapping the site. Artifacts were mapped using a theodolite borrowed from the Regional Municipality of Waterloo Planning Department. Only two artifacts were recovered from locus A, nine from locus B, and one lithic artifact from locus C. Locus C, however, is predominately an historic scatter. Two datum points were established at this time.



**Figure 2:** Artifact Surface Scatter and Test Excavation Units at Locus B.



Based on the relatively high yield and tight cluster of locus B (Figure 2), test excavations were conducted on each weekend of July using volunteer labour. By this time the site was covered in thigh-high wheat. An area approximately 30 x 20 metres was cleared by pulling the wheat by hand. A five-metre grid was established using the line between the two datums as an East-West base line. North-south lines were established using triangulation as no transit was available for use. Squares were labelled from the north-east corner. Datum 2 was designated 200N-200W with square numbers decreasing to the south and to the west.

The combination of wheat pulling and the seemingly daily occurrence of rain led to further surface collecting. Artifacts were mapped using triangulation from the established five-metre stakes. As more artifacts were mapped from surface collections, more wheat was pulled opening up a larger area in order to facilitate mapping and test excavations. Eventually an area of approximately 30 x 35 metres was surface collected (Figure 2).

One metre units were excavated approximately every five metres to reveal artifact frequencies, areas of flake reduction versus tool discarding, and site size. Units were excavated using 6 mm mesh screens and were dug to clean subsoil. Unit topsoil depths ranged from 16 - 30 cm. Soil matrices varied from sandy-loam to hard-packed silt and ranged from gravelly to rocky.

Excavated units that yielded above average quantities and/or interesting artifacts led to the excavation of adjacent units. This resulted in the uncovering of four features, three of which were mapped, profiled, and soil samples processed through flotation. The fourth feature was discovered, but not totally uncovered, while excavating the last unit of this project and was therefore left unexcavated.

## ARTIFACT ANALYSIS

Artifacts were washed and catalogued by unit provenance. Type of chert was noted and flakes were categorized according to where along the reduction sequence they belonged: primary, decortication, reducing, thinning, finishing, and platform preparation. Unifacial tools were categorized according to flake type. Evidence of retouch or use-wear was measured; the edge and surfaces were noted for unifacial artifacts. All other artifacts had their overall measurements recorded.

### Locus C

Only one prehistoric artifact was recovered from this locus: a drill base made on Onondaga chert. A scatter of historic tableware, glass, and white clay pipe sherds corresponds in location to a building depicted on the 1975 NTS map 40P/9b. The ceramics suggest a date range of approximately 1850 to the early 20th century. Although no buildings are now evident a concrete and rod iron staircase descends down the steep slope near where the house would have stood towards the river below.

### Locus A

Numerous artifacts had been surface collected from locus A prior to the author's involvement.



However, except for the three projectile points, these artifacts had been mixed with artifacts surface collected from locus B. Therefore, only the projectile points are described.

All three points were made from Onondaga chert. Two are Middle Archaic Brewerton points, while the remaining one is an Early Archaic bifurcate base. The bifurcate base point has pot lids on both surfaces and the tip appears to have exploded off as a result of heat fracturing. The larger of the two Brewerton points is corner notched with LxWxT measurements of 39.8 x 33.7 x 8.5 mm. The smaller point is side notched and has been reduced in size through resharpening with overall measurements of 37.1 x 22.1 x 8.1 mm.

#### **Locus B - Surface Collection**

One hundred and eighty-five artifacts were surface collected from locus B. Flake debitage made up the largest category of artifacts collected (n=122). Of these 112 are Onondaga chert, 9 are Haldimand chert, and one flake is Flint Ridge. The Onondaga flakes are represented by several reduction sequences: decortication (2), reducing (4), thinning (25), finishing (71), platform preparation (4), and flake fragments (6). The Haldimand flakes are represented by fewer reduction sequences: reducing (1), thinning (3), finishing (4) and platform preparation (1). The Flint Ridge sample is a finishing flake.

Thirty-three utilized flakes were recovered from surface collections. All but two Haldimand samples were made of Onondaga chert. Both of the Haldimand utilized flakes were thinning flakes with the usewear appearing distally on the dorsal surface. Utilization occurred on decortication (2), reducing (10), thinning (18) and finishing (1) flakes.

Five microscrapers were recovered from surface collections: 4 Onondaga specimens and one Haldimand. Ten of the 11 scrapers recovered are made of Onondaga chert, while the remaining sample is Haldimand, the only snubnose scraper from the surface collection. One of the scrapers, having a triangular shape, was also used as a graver. The surface collections also yielded one other graver, a wedge, 2 burins, a biface fragment, and 2 knives. One Onondaga core fragment was also recovered measuring 30.8 x 16.0 x 17.5 mm.

Five projectile points were also recovered from surface collecting: 3 Middle Archaic Brewerton points (Figure 3), a Late Archaic small-point, and a Late Archaic Hind-like point (Figure 3.g). Two of the Brewerton points are made of Selkirk chert, while the other is of Onondaga. The small-point is made of Haldimand chert, and the Hind point is made of Onondaga. All of the points, except for the corner-notched Hind point, are side-notched.

#### **Locus B - Excavation Results**

Fifty-five units were excavated, centred roughly on the initial surface collection. Although each of these units yielded reasonable artifact counts and/or tools, time and equipment constraints allowed the significant expansion of only three areas.





**Figure 3:** Locus B Projectile Points (from surface and excavated contexts).

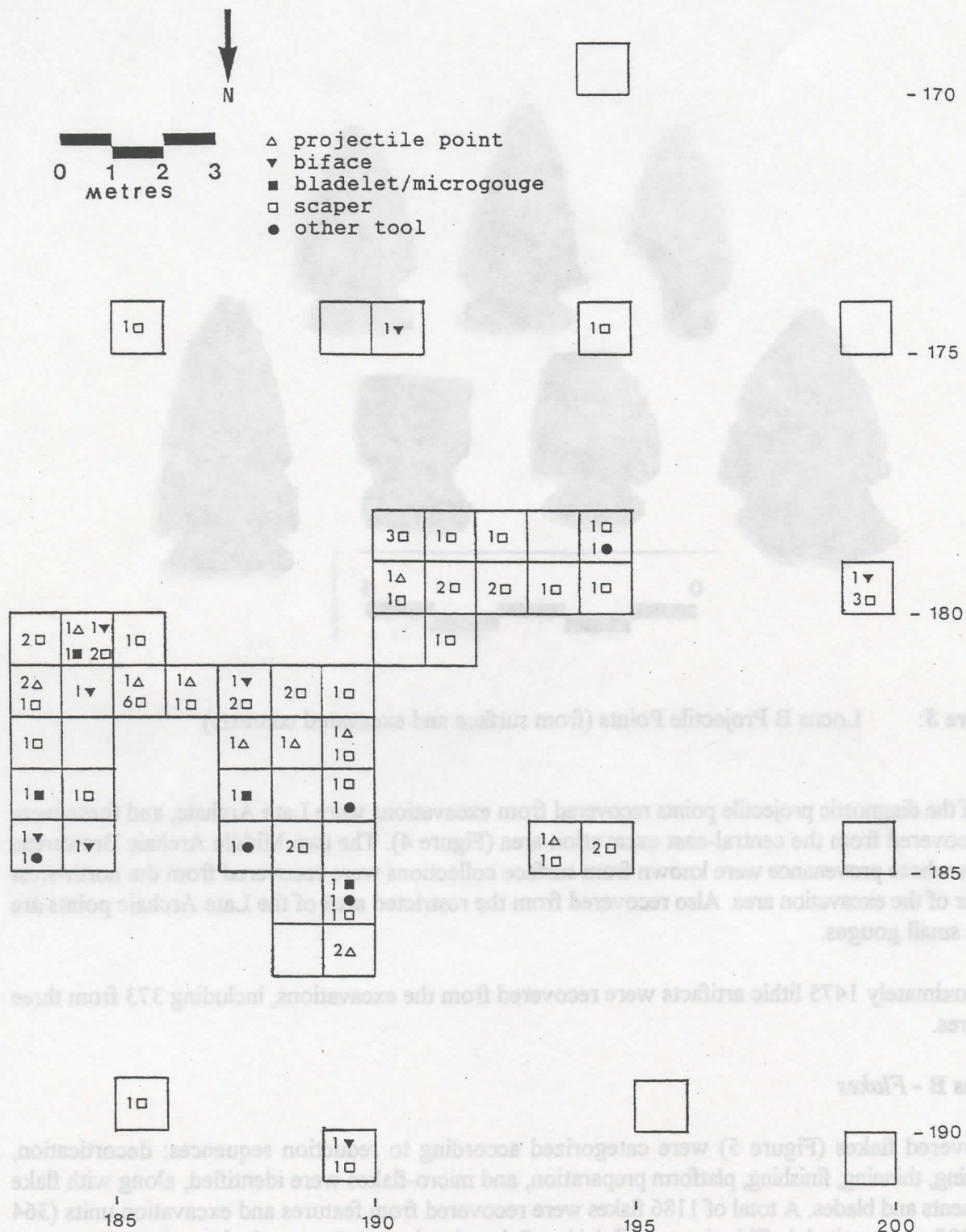
All of the diagnostic projectile points recovered from excavations were Late Archaic, and these were all recovered from the central-east excavation area (Figure 4). The two Middle Archaic Brewerton points whose provenance were known from surface collections were recovered from the north-west corner of the excavation area. Also recovered from the restricted area of the Late Archaic points are three small gouges.

Approximately 1475 lithic artifacts were recovered from the excavations, including 373 from three features.

#### **Locus B - Flakes**

Recovered flakes (Figure 5) were categorized according to reduction sequences: decortication, reducing, thinning, finishing, platform preparation, and micro-flakes were identified, along with flake fragments and blades. A total of 1186 flakes were recovered from features and excavation units (364 and 822, respectively). Thinning and finishing flakes dominated the sample from the excavations, whereas micro-flakes dominated the sample recovered from features: 1 mm mesh was used to recover the flotation heavy fraction from these features.





**Figure 4:** Locus B Projectile Point and Tool Distribution.







The vast majority of flakes were Onondaga (92.7%), followed by Haldimand (6.0%), Selkirk (n=4), and one sample each of Flint Ridge, Kettle Point, and nine flakes derived from glacially deposited cherts.

#### **Locus B - Utilized Flakes**

The vast majority of utilized flakes (n=171; see Figure 6) were made of Onondaga chert (94.7%), followed by Haldimand chert (2.9%), unidentified chert (1.8%) and one sample of Selkirk. Approximately two-thirds of the utilized flakes were reducing and thinning flakes (n=113). Decortication (4), finishing (4), platform preparation (15), blades (5), flake fragments (27), core fragments (2), and a bifacially retouched flake (1) were also utilized.

The usewear location was noted for surface(s) and edge(s). The majority of utilization occurred on the dorsal surface (n=88), compared with the ventral surface (n=60), and alternate (n=8). Most utilization occurred along lateral edges, followed in frequency by distal edge use, and then proximal edge use. Only 8 flakes were utilized in combinations of two or more edges, and on 7 of these the usewear was restricted to the same surface. Each of the three excavated features yielded 2 utilized flakes; one with distal usewear, and the other with lateral usewear, all occurring on the dorsal surface.

#### **Locus B - Scrapers**

These tools have been differentiated into two sets: scrapers, and microscrapers. The difference lies, not in the overall size of the tool, but in the extent of edge alteration. Microscrapers exhibit edge alteration that is more uniform and extensive than that found on utilized flakes, but microscrapers do not exhibit the deeper edge retouch found on scrapers.

All but one of the scrapers recovered were made of Onondaga chert; the remaining scraper is of an undetermined/glacial chert. Half of the scrapers were made on reducing flakes (n=16). These do not include an additional 5 snubnose scrapers (Figure 7). Scrapers were also made out of platform preparation flakes, a thinning flake, a blade, one biface, and several biface fragments.

Scraper edges are three times as likely to occur on dorsal surfaces as they are on ventral surfaces. Only one scraper demonstrated alternate retouch, and this occurred on the distal edge. All but one of the scrapers whose retouch occurred on the ventral surface exhibited the retouch on the lateral edge, the exception being proximal edge retouch. Dorsal surface retouch scrapers commonly have lateral edge retouch; only 2 have distal edge retouch, and one scraper has its total circumference retouched.

Nineteen of the 21 microscrapers recovered are made of Onondaga chert, one is made of Haldimand chert, and the remaining microscraper is of an unidentified/glacial chert. Eight of these microscrapers were made from reducing flakes, 8 from thinning flakes, 2 from blades, two from flake fragments, and one from a core fragment.









**Figure 7:** Snubnose Scrapers From Locus B.

Retouch occurred on the dorsal surface of 12 microscrapers, on the ventral surface of 6, and 3 have alternate retouch. Most of the retouch occurs along lateral edges ( $n=14$ ), as well as distal edges ( $n=4$ ), one proximal edge, one example of both proximal and distal retouch, and one example of both distal and lateral retouch.

#### **Locus B - Bifaces**

Seven of the eight recovered bifaces were made on Onondaga chert, whereas the remaining biface is Haldimand. Two of the bifaces are knives demonstrating edge usewear. Three of the bifaces are preforms, and the remaining examples are fragments of bifaces.

#### **Locus B - Projectile Points**

Twelve projectile points and point fragments were recovered during excavations. Nine of the points are made of Onondaga chert, while the remaining 3 are made of Haldimand chert. Three of the projectile points consist of tips only, 3 are base fragments, 2 points have missing tips, 2 points have missing or partially missing bases, and 2 points are complete.

The 3 points that have measurable lengths fall within a tight range (30.3, 31.7 and 33.3 mm). Five complete widths also display a tight range (16.4 to 18.9 mm). Six complete thicknesses have a range of 4.6 to 6.2 mm. Five base widths range from 14.9 to 19.7 mm. Four points display complete hafting



widths; one corner-notched point has a hafting width of 9.7 mm, while all 3 side-notched points have a hafting width of 11.3 mm.

None of the points exhibit basal grinding. Four have straight bases, one has a slightly convex base, and the remaining one has a convex base. All of the points are considered Late Archaic in origin.

#### **Locus B - Cores**

Seven cores recovered include one bipolar core of glacial chert, 2 random cores of Onondaga chert, 2 core fragments of Onondaga chert, and 2 block cores, one each of Onondaga and Selkirk chert. Although all but one of the cores were small (i.e., the largest dimension was less than 33 mm), the exception was a healthy 91.6 x 59.8 x 40.0 mm of very good quality Onondaga chert. The discarding of such a large nugget of chert suggests that chert was a plentiful resource.

#### **Locus B - Other Tools**

Two burins, a drill tip, one piercer, one graver, and 3 microgouges (Figure 8) were recovered. Similar microgouges have been recovered from the Early Archaic Kassel (Lennox 1993) and Nettling sites (Ellis et al. 1991) in southwestern Ontario, although these have been referred to as "retouched bladelets" by Lennox. Microgouges also have been recovered from the Early Archaic strata at the Icehouse Bottom site in Tennessee (Chapman 1977). Blade-like flakes were also recovered from the Early Archaic strata of the Icehouse Bottom site (Chapman 1977: 70-71). Indeed, retouched bladelets would almost appear to be diagnostic of Early Archaic components. A number of blade-like flakes were recovered from TGIS, with a few having been utilized or edge retouched (Figure 9).

The tools described as "retouched bladelets" from the Kassel site include blade-like flakes with edge retouch, and a blade-like tool that has extensive flaking scars covering most surfaces and can include all edges. Chapman (1977: 77) refers to these as drills. Similar tools have been recovered from Site 20-MD-28 in Michigan (Ozker 1976) and from the Sumac Bluff site. Munson (1966) recovered similar tools from the Sheets site in Illinois and referred to these as "...either somewhat aberrant drills or small gouges..." (Munson 1966: 114). Ozker suggests that the term microgouges is a more appropriate terminology for these tools and "...have a possible time range from Late Archaic into Early Late Woodland." (Ozker 1976: 30).

In order to clarify the terminology, the tool class "retouched bladelets" should be divided into two categories: Retouched Bladelets should refer to those blade-like flakes that have restricted edge retouch; and, Microgouges should refer to those bifacially retouched blades that have had extensive retouch often on all edges and surfaces.

Neither the retouched bladelets or microgouges can be assigned to any specific time period as the range appears to be from the Early Archaic to Late Woodland. The paucity of these tools having been documented from sites in Ontario is as remarkable as is the similarity between the microgouges recovered from sites dating over five thousand years apart.





**Figure 8:** Locus B Microgouges.



**Figure 9:** Locus B Retouched Bladelets.

## **Locus B - Features**

Four features were uncovered during the excavation (Figure 10), although only three were mapped and excavated. The fourth feature was detected while excavating the last unit of this project and was subsequently reburied without further disturbance. Feature 4's similar planview to the other three features was noted.

Feature 1 (Figure 11) was a dark linear, irregularly shaped depression filled with a smudgy-black matrix with charcoal flecks. The matrix surrounding this feature consisted of light coloured clay and sand. The 1.4 metre long axis was oriented SE-NW. Two profiles illustrate an irregular to bathtub shaped depression of 20 cm maximum depth.

The entire soil matrix (60 litres) was bagged and processed using a flotation SMAP machine. The heavy fraction was captured using a 1 mm mesh screen. Two hundred and thirteen lithic artifacts were recovered from Feature 1 that included: 177 microflakes, 33 flakes, 2 utilized flakes, and one microscraper. Ninety-six percent of these artifacts consist of Onondaga chert, while the remainder are Haldimand.

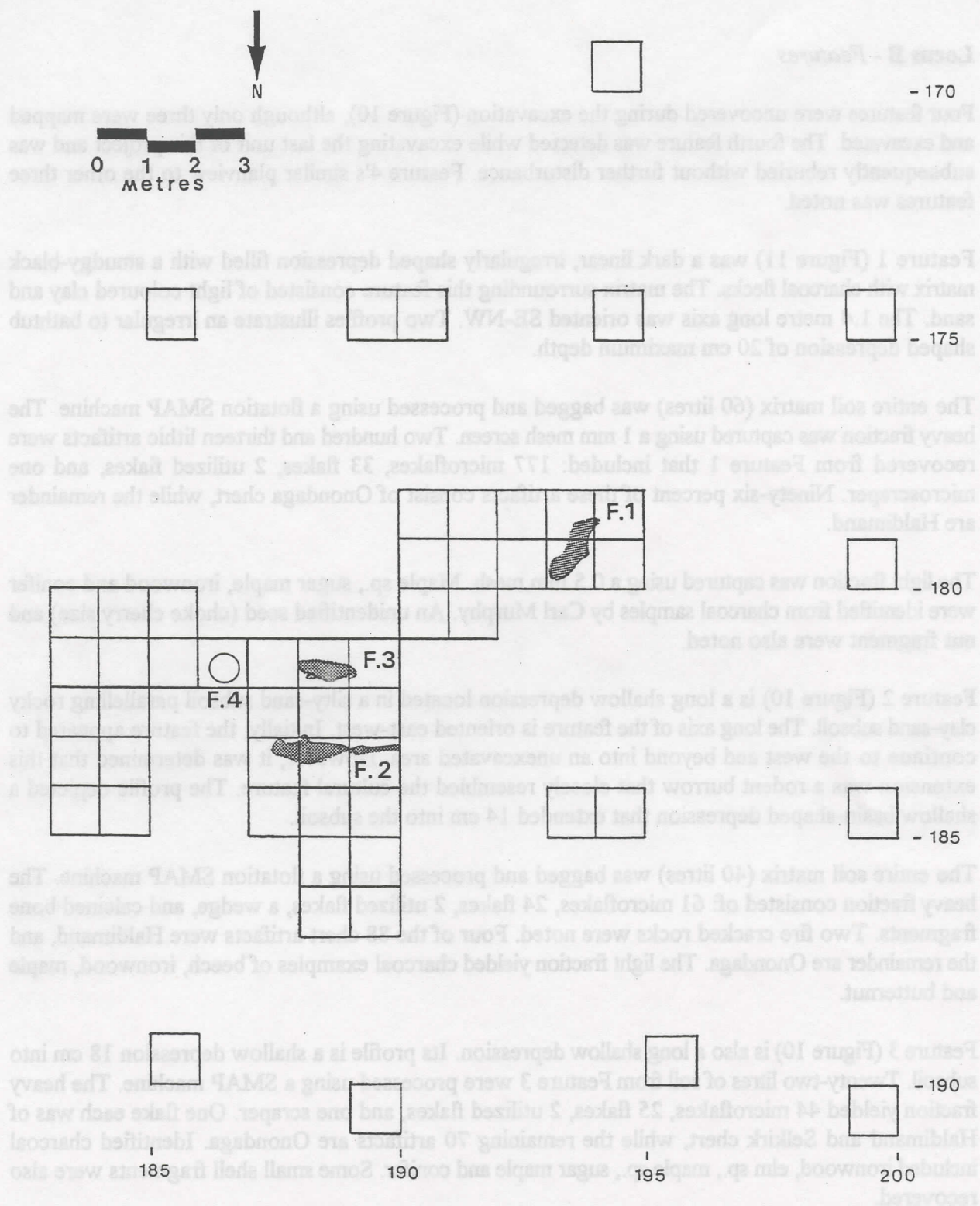
The light fraction was captured using a 0.5 mm mesh. Maple sp., sugar maple, ironwood and conifer were identified from charcoal samples by Carl Murphy. An unidentified seed (choke cherry size) and nut fragment were also noted.

Feature 2 (Figure 10) is a long shallow depression located in a silty-sand subsoil parallelling rocky clay-sand subsoil. The long axis of the feature is oriented east-west. Initially, the feature appeared to continue to the west and beyond into an unexcavated area. However, it was determined that this extension was a rodent burrow that closely resembled the cultural feature. The profile depicted a shallow basin-shaped depression that extended 14 cm into the subsoil.

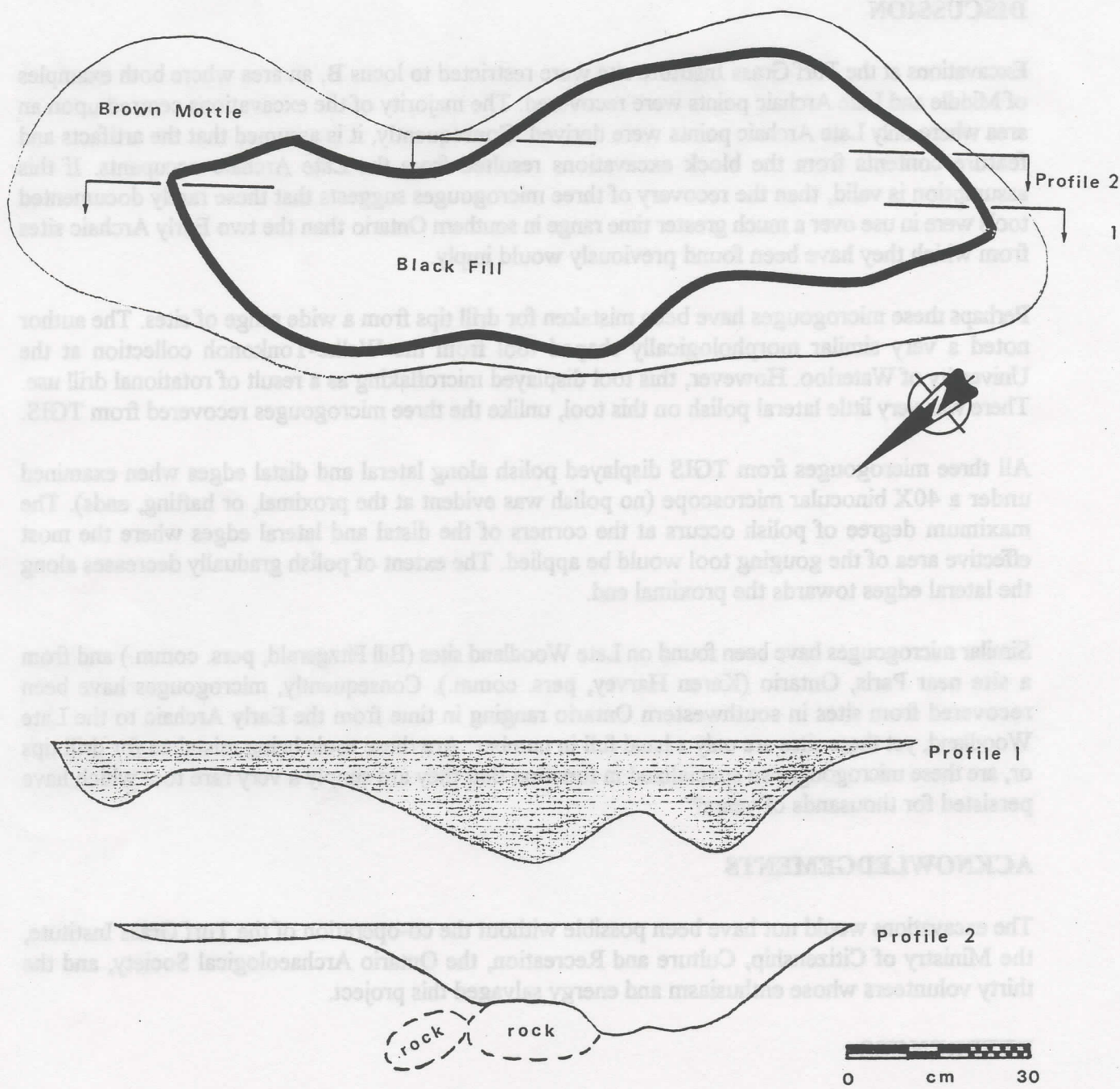
The entire soil matrix (40 litres) was bagged and processed using a flotation SMAP machine. The heavy fraction consisted of: 61 microflakes, 24 flakes, 2 utilized flakes, a wedge, and calcined bone fragments. Two fire cracked rocks were noted. Four of the 88 chert artifacts were Haldimand, and the remainder are Onondaga. The light fraction yielded charcoal examples of beech, ironwood, maple and butternut.

Feature 3 (Figure 10) is also a long shallow depression. Its profile is a shallow depression 18 cm into subsoil. Twenty-two litres of soil from Feature 3 were processed using a SMAP machine. The heavy fraction yielded 44 microflakes, 25 flakes, 2 utilized flakes, and one scraper. One flake each was of Haldimand and Selkirk chert, while the remaining 70 artifacts are Onondaga. Identified charcoal included ironwood, elm sp., maple sp., sugar maple and conifer. Some small shell fragments were also recovered.





**Figure 10:** Locus B Feature Locations.



**Figure 11:** Locus B Feature 1.



## DISCUSSION

Excavations at the Turf Grass Institute site were restricted to locus B, an area where both examples of Middle and Late Archaic points were recovered. The majority of the excavations centred upon an area where only Late Archaic points were derived. Consequently, it is assumed that the artifacts and feature contents from the block excavations resulted from the Late Archaic occupants. If this assumption is valid, then the recovery of three microgouges suggests that these rarely documented tools were in use over a much greater time range in southern Ontario than the two Early Archaic sites from which they have been found previously would imply.

Perhaps these microgouges have been mistaken for drill tips from a wide range of sites. The author noted a very similar morphologically shaped tool from the Welke-Tonkonoh collection at the University of Waterloo. However, this tool displayed microflaking as a result of rotational drill use. There was very little lateral polish on this tool, unlike the three microgouges recovered from TGIS.

All three microgouges from TGIS displayed polish along lateral and distal edges when examined under a 40X binocular microscope (no polish was evident at the proximal, or hafting, ends). The maximum degree of polish occurs at the corners of the distal and lateral edges where the most effective area of the gouging tool would be applied. The extent of polish gradually decreases along the lateral edges towards the proximal end.

Similar microgouges have been found on Late Woodland sites (Bill Fitzgerald, pers. comm.) and from a site near Paris, Ontario (Karen Harvey, pers. comm.). Consequently, microgouges have been recovered from sites in southwestern Ontario ranging in time from the Early Archaic to the Late Woodland, yet these sites are only a hand full in number. Are these tools being mistaken for drill tips or, are these microgouges so specialized in function that they are simply a very rare tool which have persisted for thousands of years?

## ACKNOWLEDGEMENTS

The excavations would not have been possible without the co-operation of the Turf Grass Institute, the Ministry of Citizenship, Culture and Recreation, the Ontario Archaeological Society, and the thirty volunteers whose enthusiasm and energy salvaged this project.

## REFERENCES

Chapman, J.

1977 *Archaic Period Research in the Lower Little Tennessee River Valley-1975*. Dept. of Anthropology, University of Tennessee, Report of Investigations, Number 18. Knoxville.

Chapman, L.J. and D.F. Putnam

1984 *The Physiography of Southern Ontario*. Geological Survey, Ministry of Natural Resources. Toronto.

Ellis, C.J., S. Wortner and W.A. Fox

- 1991 Nettling: An Overview of an Early Archaic Kirk Corner-Notched Cluster Site in Southwestern Ontario. *Canadian Journal of Archaeology* 15: 1-34.

Hoffman, D.W., B.C. Matthews and R.E. Wicklund

- 1963 *Soil Survey of Wellington County, Ontario*. Report No. 35 of the Ontario Soil Survey. Ontario Agricultural College. Guelph.

Lennox, P.A.

- 1993 The Kassel and Blue Dart Sites: Two Components of the Early Archaic, Bifurcate Base Projectile Point Tradition, Waterloo County, Ontario. *Ontario Archaeology* 56: 1-31.

Munson, P.J.

- 1966 The Sheets Site: A Late Archaic-Early Woodland Occupation in West-Central Illinois. *Michigan Archaeologist* 12(3): 111-120.

Ozker, Doreen

- 1976 A Descriptive Report of the Surface Collections From Site 20-MD-28, Chippewa Nature Centre. *Michigan Archaeologist* 22(1): 1-102.